

**DII.3003.DEC40.DTK.VDD-1**

**Defense Information Infrastructure (DII)**

**Common Operating Environment (COE)**

**Version 3.0.0.3**

**Version Description Document for the Developer's Toolkit  
(Digital UNIX 4.0)**

**December 10, 1997**

**Prepared for:**

**Defense Information Systems Agency**

**Prepared by:**

**Inter-National Research Institute (INRI)  
12200 Sunrise Valley Drive, Suite 300  
Reston, Virginia 20191**



## Table of Contents

|     |                                       |   |
|-----|---------------------------------------|---|
| 1.  | System Overview .....                 | 1 |
| 2.  | Referenced Documents .....            | 3 |
| 3.  | Version Description .....             | 3 |
| 3.1 | Inventory of Materials Released ..... | 3 |
| 3.2 | Software Changes .....                | 4 |
| 4.  | Installation Instructions .....       | 4 |
| 5.  | Known Problems and Errors .....       | 4 |
| 6.  | Release Notes .....                   | 4 |

This page intentionally left blank.

**NOTE:** Courier font is used to indicate entries to be typed at the keyboard, UNIX commands, file and directory names, and screen text. For example:

The file is located in the `DII_DEV` directory.

## 1. System Overview

Defense Information Infrastructure (DII) Common Operating Environment (COE) developer's tools aid the developer in the creation and ultimate installation of DII COE segments. The tools make software integration a largely automated process, thus significantly reducing development time while automatically allowing detection of potential integration and runtime problem areas.

This delivery consists of (1) 10 developer tools (`CalcSpace`, `CanInstall`, `ConvertSeg`, `MakeAttribs`, `MakeInstall`, `TestInstall`, `TestRemove`, `TimeStamp`, `VerifySeg`, and `VerUpdate`); (2) a setup script called `MakeTOOLSEnv`; (3) a data file called `TapeSizes` that contains a list of known tape devices; and (4) an Application Programmer Interface (API) `examples` directory and `includes` and `libs` directories; (5) a `SampleSegments` directory; and (6) a `man` directory. The Developer's Toolkit is delivered separately from the DII COE Kernel tape. By default, this product is located under the `DII_DEV` directory. The actual location of the Developer's Toolkit may vary from system to system because it is installed via a `tar` command. For example, if the toolkit is tarred to `/h`, the path would be `/h/DII_DEV`.

### Developer's Tools

The 10 developer's tools can be run from the command line, and some can be run from other code using published APIs. The following developer's tools are included in the DII COE Version 3.0.0.3 delivery. The *DII COE Integration and Runtime Specification*, the *DII COE Programming Guide*, and the *DII COE Application Programmer Interface Reference Guide* describe these tools and their functionality in more detail.

- C **CalcSpace** Version 1.0.0.4—Computes the space required for the segment specified and updates the hardware descriptor.
- C **CanInstall** Version 1.0.0.6—Tests a segment to see if it can be installed, which means that all required segments must already be on the disk and the disk cannot have any conflicting segments.
- C **ConvertSeg** Version 1.0.0.7—Examines a segment's segment descriptors and converts them to the *DII COE Integration and Runtime Specification* segment format.
- C **MakeAttribs** Version 1.0.0.7—Creates the descriptor file `FileAttribs`, which recursively traverses every subdirectory beneath the segment home directory and creates a file with lines in the proper format.

- C **MakeInstall** Version 1.0.1.5—Writes one or more segments to an installation medium or packages the segments for distribution over the network.
- C **TestInstall** Version 1.0.0.7—Installs a segment (temporarily) that already resides on disk.
- C **TestRemove** Version 1.0.0.6—Removes a segment that was installed by TestInstall.
- C **TimeStamp** Version 1.0.0.6—Puts the current time and date into the `VERSION` descriptor of the specified segment.
- C **VerifySeg** Version 1.0.0.7—Validates that a segment conforms to the rules for defining a segment.
- C **VerUpdate** Version 1.0.1.5—Increments the segment version number and updates the date and time in the `VERSION` descriptor of the specified segment.

#### **MakeTOOLSEnv Setup Script**

The `MakeTOOLSEnv` setup script is located in the `DII_DEV/Scripts` directory. It defines the environment variables required for developer's tools processing. This script should be sourced before running the developer's tools.

#### **TapeSizes Data File**

The `TapeSizes` data file is located in the `DII_DEV/data` directory. It contains a list of known tape devices. This file is used as a convenience feature with the `MakeInstall` tool.

**NOTE:** The environment variable `TOOLS_DATA` must be set and pointing to `DII_DEV/data` to allow `MakeInstall` to access this file.

#### **examples Directory**

The `examples` directory contains a list of example C programming files, which show developers how to use the public APIs. The required public `include` files are also shown. Examples are located in the `DII_DEV/examples` directory.

#### **includes Directory**

Public `include` files are used to compile with the public APIs. Public `include` files are located in the `DII_DEV/includes` directory.

#### **libs Directory**

Public API libraries are located in the `DII_DEV/libs` directory.

### **SampleSegments Directory**

The SampleSegments directory contains sample DII COE segments, which can be used to show developers how the 10 developer tools work. Sample segments are located in the DII\_DEV/SampleSegments directory.

### **man Directory**

Public man pages are located in the DII\_DEV/man directory.

## **2. Referenced Documents**

The following documents are referenced in this version description document (VDD):

- C DII COE I&RTS:Rev 2.0, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Integration and Runtime Specification Version 2.0*, October 23, 1995
- C DII.3003.DEC40.PG-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Programming Guide (Digital UNIX 4.0)*, December 10, 1997
- C DII.3003.DEC40.RG-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Application Programmer Interface (API) Reference Guide (Digital UNIX 4.0)*, December 10, 1997
- C DII.3003.DEC40.DTK.IG-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Developer's Toolkit Installation Guide (Digital UNIX 4.0)*, December 10, 1997.

## **3. Version Description**

### **3.1 Inventory of Materials Released**

- C Magnetic media: Two 4mm tapes consisting of a relative tar of the Developer's Toolkit, Version 3.0.0.3 (Digital UNIX 4.0).
- C Soft-copy Documentation: One 3.5" floppy diskette (WordPerfect 6.0 for Windows format) containing the *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Version Description Document for the Developer's Toolkit (Digital UNIX 4.0)*, Document Control No. DII.3003.DEC40.DTK.VDD-1, December 10, 1997.
- C Hard-copy Documentation: Two hard copies of the aforementioned VDD.

## 3.2 Software Changes

Since this delivery is the first DII COE Developer's Toolkit (Digital UNIX 4.0) release, no software changes are applicable.

## 4. Installation Instructions

Reference the *DII COE Developer's Toolkit Installation Guide* for instructions on installing the developer's tools.

## 5. Known Problems and Errors

There are no known problems and errors with the DII COE Version 3.0.0.3 Developer's Toolkit (Digital UNIX 4.0).

## 6. Release Notes

### General

1. The user must log in as `root` to install the Developer's Toolkit tape. By doing this, the user will ensure that the tools have the correct permissions and ownerships to simplify use.
2. The tools do not support the `?` command line parameter for help. Help can be displayed for all tools by using the `-h` or `-H` command line parameters.
3. If the `add`, `append`, or `delete` keywords are used in the community `SegDescrip` entry, the brackets "`{ }`" that mark the beginning and end of the text must be the first characters on a new line.
4. The `MakeTOOLSEnv` script must be run in the `DII_DEV/Scripts` directory to set the `TOOLS_HOME`, `MACHINE`, `MACHINE_OS`, and `CPU` environment variables. This script should be run before running any of the developer's tools. If this script is not run, errors may occur.

### MakeInstall Tool

1. `MakeInstall` supports multi-volume tapes but will not divide segments across tapes.
2. `MakeInstall` does not support variants.
3. `MakeInstall` does not allow segments and their descriptors to be checked out from the repository.
4. `MakeInstall` does not support the `-ot {files}` command line option.



5. The `TOOLS_DATA` environment variable must be set to the developer's tools data directory in order to display the device table.
6. In order not to compress a segment, the `$NOCOMPRESS` option must be specified in the direct `SegDescrip` entry in the `SegInfo` file. `MakeInstall` no longer prompts the user with a compress option; instead, the tool automatically references the `SegDescrip` entry.

### **TestInstall Tool**

1. The `AcctGrp` descriptor only supports one entry. If multiple entries exist, only the first account group is created.
2. The `Hardware` descriptor does not support "PC" or "Pentium" in the `$CPU` field and does not support "NT" or "SCO" in the `$OPSYS` field. These keywords are supported but are invalid on UNIX platforms.
3. Network Information Service (NIS) and Domain Name Service (DNS) servers are not updated when processing the `Network` descriptor.
4. The `$NETMASK` keyword in the `Network` descriptor is not processed.
5. The `$HOME_DIR` keyword in the `Requires` descriptor is not processed.

### **TestRemove Tool**

1. `TestRemove` does not remove services, groups, or password file entries and does not perform an unmount.

### **TimeStamp Tool**

1. If a valid version line in the version file cannot be identified and no command line parameters are given, the `TimeStamp` tool will return an error.

### **VerifySeg Tool**

1. `VerifySeg` does not check the syntax of version numbers listed in the `Compat Segment Descriptor` file.
2. `VerifySeg` performs keyword parsing (searches for keywords and their associated fields) but does not perform validity (bounds or data field) checking in the `Conflicts` or `VERSION` descriptor file.
3. `VerifySeg` does not perform checking in the `FilesList Segment Descriptor` file.
4. `VerifySeg` performs validity checking (bounds or data field) on keywords but not on data associated with keywords (e.g., disk size in the `Hardware Segment Descriptor` file).

5. VerifySeg does not check keyword combination or keyword and segment type constraints in the Hardware Segment Descriptor file.
6. VerifySeg should not be run on a NFS-mounted file system as root. The ownership of the validated file becomes unknown and it can adversely affect the DEC tar command.

### **VerUpdate Tool**

1. If a valid version line in the version file cannot be identified and no command line parameters are given, the VerUpdate tool will return an error.

### **Public APIs**

Reference the *DII COE API Reference Guide* and the *DII COE Programming Guide* for information on public APIs.